Complete Summary

GUIDELINE TITLE

National Heart Foundation of Australia physical activity recommendations for people with cardiovascular disease.

BIBLIOGRAPHIC SOURCE(S)

Briffa T, Maiorana A, Allan R, et al, Executive Working Group, National Forum Participants. National Heart Foundation of Australia physical activity recommendations for people with cardiovascular disease. Sydney (Australia): National Heart Foundation of Australia; 2006 Jan. 32 p. [56 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Cardiovascular disease, including the following:

- Coronary heart disease
- Heart failure
- Stroke
- Peripheral vascular disease

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Prevention
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine

INTENDED USERS

Advanced Practice Nurses
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To provide general practitioners, physicians, and healthcare providers with evidence-based physical activity information for specific, stable cardiovascular conditions

TARGET POPULATION

Patients with specific, well-compensated, clinically stable cardiovascular conditions including:

- Coronary heart disease
- Heart failure
- Stroke
- Peripheral vascular disease

Note: Persons with a pacemaker, implantable cardioverter defibrillator, congenital or valvular heart disease, and/or diabetes are also briefly addressed.

INTERVENTIONS AND PRACTICES CONSIDERED

1. Pre-activity evaluation including medical review, physical examination, and history of physical activity
2. Thirty minutes of moderate-intensity physical activity on most days of the week, as appropriate for patient's condition, including supervised exercise rehabilitation where available and practical
3. Brief, appropriate, written physical activity advice

MAJOR OUTCOMES CONSIDERED

- Levels of physical activity
- Functional capacity

- Risk for cardiovascular events
- All-cause and cardiovascular mortality
- Mental wellbeing/quality of life
- Muscle fitness
- Risks associated with exercise

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases
Searches of Unpublished Data

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Reviews published since the 1996 report by the United States Surgeon General on physical activity and health were identified by searching PubMed, the Cochrane Library, and PsycINFO, using the search terms exercise, physical activity, cardiovascular disease (CVD), heart disease, coronary heart disease, coronary artery disease, heart failure, stroke, peripheral vascular disease, peripheral arterial disease, claudication, and diabetes mellitus. Limits of humans, adults, and English only were imposed. These searches were complemented by searches of the reference lists of reviews, personal collections of the Working Group, and websites of leading national and international health agencies concerned with heart, stroke, vascular disease, and diabetes.

NUMBER OF SOURCE DOCUMENTS

A total of 37 relevant articles were identified.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

II: Evidence obtained from at least one properly designed randomised controlled trial

III-1: Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method)

III-2: Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series without a control group

III-3: Evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series with a parallel control group

IV: Evidence obtained from case series, either post-test or pre-test and post-test

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

This position statement was prepared by an Expert Working Group chaired by Dr Roger Allan on behalf of the National Physical Activity and the Medical Issues Advisory Committees. The Working Group, which has expertise in physical activity, cardiovascular exercise physiology, cardiology, epidemiology, public health medicine, health promotion, general practice, and secondary prevention of coronary heart disease, prepared an initial evidence-based draft statement, which was circulated for comment. Comments were incorporated into a second draft, which was then circulated more widely and discussed at an open forum held on 28 February 2005.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Grades of Recommendations

A. Rich body of high-quality randomized controlled trial (RCT) data (evidence level I)
B. Limited body of RCT data or high-quality non-RCT data (evidence level II, III-1, III-2)
C. Limited evidence (evidence level III-3, IV)
D. No evidence available – panel consensus judgment

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The Working Group prepared an initial evidence-based draft statement, which was circulated for comment. Comments were incorporated into a second draft, which was then circulated more widely and discussed at an open forum held on 28 February 2005.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse: The recommendations that follow are from the guideline's "Summary of Evidence and Recommendations"; detailed recommendations can be found in the original guideline document.

The levels of evidence (I, II, III-1, III-2, III-3, IV) and grades of recommendations (A-D) are defined at the end of the "Major Recommendations" field.

The National Heart Foundation of Australia recommends that to benefit health, people with cardiovascular disease (CVD) should aim, over time, to include 30 minutes or more of moderate-intensity physical activity on most, if not all days of the week. The amount of activity can be accumulated in short bouts; such as three 10-minute sessions each day. A person's current level of activity, the severity of their cardiovascular condition, co-morbidities, and personal preferences should determine the approach and rate of progress towards these goals.

Evidence	Level of Evidence	Recommendations	Grade
Brief physical activity advice from primary carers is effective in increasing levels of physical activity.	II	Doctors and clinicians should routinely provide brief, appropriate, written physical activity advice to patients with well-compensated clinically stable CVD.	B
Exercise rehabilitation soon after an acute coronary syndrome (ACS) event or coronary revascularisation is effective in accelerating functional capacity and lowering subsequent risk for cardiovascular events.	I	Well-compensated, clinically stable recent (<2/52) survivors of a myocardial infarction (MI), unstable angina pectoris (UAP), coronary artery bypass grafting (CABG), or percutaneous coronary interventions (PCI), should be offered and, where available, participate in a short period (up to 12 weeks) of supervised exercise rehabilitation.	A

Evidence	Level of Evidence	Recommendations	Grade
Habitually physically active older men with CVD have a lower risk of all-cause and cardiovascular mortality.	III-2	Well-compensated, clinically stable people with CVD should progress over time to 30 minutes (all together or in shorter bouts), or more, of up to moderate intensity physical activity on most, if not all days of the week. Those with advanced CVD may have to down regulate the recommended dose.	B
Regular physical activity increases the functional capacity of people with heart failure.	I	Well-compensated, clinically stable people with heart failure should progress over time to 30 minutes (all together or in shorter bouts), or more, of up to moderate intensity physical activity on most, if not all, days of the week.	A
Regular physical activity increases the functional capacity of people with implantable cardiac devices, congenital or valvular heart disease.	IV	Well-compensated, clinically stable people with valvular heart disease, congenital heart disease, or implantable cardiac devices should progress, over time, to 30 minutes (all together or in shorter bouts), or more, of up to moderate intensity physical activity on most, if not all days of the week.	D
Older habitually physically active people with CVD show improved functional capacity and mental wellbeing.	II	Unless contraindicated, all older people with CVD should progress, over time, to 30 minutes (all together or in shorter bouts), or more, of moderate intensity physical activity on most, if not all days of the week.	B
Regular physical activity improves functional capacity among people with stroke, peripheral vascular disease (PVD), or diabetes.	II	Unless contraindicated, all people with PVD, diabetes, and stroke survivors with sufficient residual function should progress over time to 30 minutes (all together or in shorter bouts), or more, of up to moderate intensity physical activity on most, if not all days of the week.	B
Prescriptive light to moderate resistance activity is safe and improves muscle fitness among people with CVD.	II	Well-compensated, clinically stable people with CVD should initiate resistance activity under supervision by a trained health professional.	B

Definitions:

Levels of Evidence

I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs).

II: Evidence obtained from at least one properly designed randomised controlled trial.

III-1: Evidence obtained from well-designed pseudo-randomised controlled trials (alternate allocation or some other method).

III-2: Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time series without a control group.

III-3: Evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series with a parallel control group.

IV: Evidence obtained from case series, either post-test or pre-test and post-test.

Grades of Recommendations

A. Rich body of high-quality randomized controlled trial (RCT) data (evidence level I)
B. Limited body of RCT data or high-quality non-RCT data (evidence level II, III-1, III-2)
C. Limited evidence (evidence level III-3, IV)
D. No evidence available – panel consensus judgment

CLINICAL ALGORITHM(S)

A clinical algorithm for physical activity for people with stable cardiovascular disease is provided in the original guideline document.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for selected recommendations (see "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Research shows that regular endurance physical activity produces cardiovascular adaptations that increase work capacity, endurance, and vascular function. Further, resistance activity can improve muscular strength. Regular physical activity may improve an individual's cardiovascular risk profile by lowering blood pressure, modulating lipids, reducing insulin resistance, managing unhealthy body weight, and enhancing psychosocial status/mental wellbeing. Habitual physical activity also reduces the risk of

developing coronary heart disease (CHD) and ameliorates symptoms in those with the disease.

- There is also evidence that habitual physical activity reduces the risk of developing numerous chronic diseases, including cardiovascular disease (CVD), type 2 diabetes, osteoporosis, obesity, depression, and breast and colon cancer
- Regular physical activity incorporating large muscle groups (such as walking, cycling, and swimming and, in certain circumstances, resistance work) is instrumental in the prevention and treatment of heart attack, stroke, and peripheral vascular disease (PVD).
- Associated benefits of regular physical activity for those with CVD include:
    - Augmented physiological functioning and improved quality of life
    - A survival benefit with exercise training among patients with heart failure with further studies required to confirm these data
    - Similarly, further research is required to elucidate potential survival benefits with physical activity for older patients with coronary heart disease.

POTENTIAL HARMS

- The most common risk associated with physical activity in the general population is musculoskeletal injury with a particularly low estimated prevalence of injury for walking, gardening, and cycling.
- The risk of a major or fatal cardiac event occurring among participants attending supervised cardiac rehabilitation programs in the United States of America is estimated to be 1 for every 117,000 and 750,000 hours of participation in physical activity, respectively.

CONTRAINDICATIONS

CONTRAINDICATIONS

People with any of the following contraindications should not engage in physical activity without medical review prior to commencing physical activity:

- Unstable angina
- Symptoms such as chest discomfort and shortness of breath on low activity
- Uncontrolled cardiac failure
- severe aortic stenosis
- Uncontrolled hypertension or with grade 3 (severe) hypertension (e.g., systole $\geq$180 and diastole $\geq$110 mm Hg)
- Acute infection or fever, or are feeling unwell (not limited to but including acute myocarditis or pericarditis)
- Resting tachycardia and/or arrhythmias
- Uncontrolled diabetes
- Change in clinical status (e.g., symptoms occurring at lower levels of exertion or at rest)
- Diabetic with poor blood glucose level control (e.g., < 6 mmol/L or >15 mmol/L

Indications for a Person to Stop Physical Activity

Clinical advice should be given to stop physical activity, if any of the following occur:

- Squeezing, discomfort or typical pain in the centre of the chest or behind the breastbone ± spreading to the shoulders, neck, jaw and/or arms
- Symptoms reminiscent of previous myocardial ischaemia
- Dizziness, light headedness or feeling faint
- Difficulty breathing
- Nausea
- Uncharacteristic excessive sweating
- Palpitations associated with feeling unwell
- Undue fatigue
- Leg ache that curtails function
- Physical inability to continue
- For people with diabetes: shakiness, tingling lips, hunger, weakness, palpitations

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

These recommendations provide a general framework for appropriate practice to be followed, subject to the medical practitioner or clinician's judgment in each individual case. They underpin the doctor/patient interface summary document (see "Clinical Algorithm(s)" field) and can be read in conjunction with other reference materials such as the Heart Foundation's best-practice guidelines.

Limitations of Current Evidence

Functional and quality of life gains aside, the survival benefits of habitual physical activity for people with cardiovascular disease (CVD) are largely drawn from studies based on exercise training involving mostly men engaging in light to moderate intensity physical activity, with varying degrees of supervision, and ongoing medical review. The majority of these studies pre-date the recent major interventional and pharmacological advances in cardiovascular disease management. Further research is warranted to confirm the survival benefit of regular physical activity in those people with established cardiovascular disease receiving contemporary medical therapy.

Medico-legal Considerations

This document is intended to assist general practitioners (GPs) in providing specific evidence-based physical activity advice to their patients with well-compensated, clinically stable CVD. Where GPs feel unable to provide detailed advice, they may of course refer to tertiary services.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Physical Activity Promotion in General Practice

Given population wide access to people of all ages, General Practice is an important setting for promoting physical activity. In 2002, 85% of the Australian population attended a GP at least once. GPs are regarded as a reliable source of health information, and the consultation represents a unique opportunity to provide personalised counselling on behaviour change. Many of the patients with chronic conditions that GPs and practice nurses regularly see will benefit from being more physically active. A recent study of Australian doctors has shown that GPs feel it is part of their role to discuss physical activity with their patients and increase their patients' activity levels.

Future opportunities for implementation exist with government, non-government organisations, and industry for lifestyle initiatives. For those with cardiovascular conditions, the chronic disease management framework is one such opportunity where physical activity can be incorporated as a management strategy. The integrated approach to chronic disease management and the recent advances in information technology and medical software development will enable the seamless incorporation of lifestyle interventions into the medical treatment and prevention of chronic conditions. Cardiovascular disease (CVD) is just one of many conditions that will benefit from this approach.

Evidence for the Promotion of Physical Activity in General Practice

Currently there are three reviews of physical activity interventions delivered through general practice. They conclude that brief physical activity interventions involving verbal advice in combination with supporting written material, can lead to modest (up to 10%) short-term increases in physical activity participation. The practical application can be achieved through the '5 As' approach identified in Appendix 4 of the original guideline document. This combines motivational interviewing with a tailored approach to increasing an individual's level of physical activity.

IMPLEMENTATION TOOLS

Clinical Algorithm
Quick Reference Guides/Physician Guides
Resources

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Briffa T, Maiorana A, Allan R, et al, Executive Working Group, National Forum Participants. National Heart Foundation of Australia physical activity recommendations for people with cardiovascular disease. Sydney (Australia): National Heart Foundation of Australia; 2006 Jan. 32 p. [56 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006 Jan

GUIDELINE DEVELOPER(S)

National Heart Foundation of Australia - Disease Specific Society

SOURCE(S) OF FUNDING

National Heart Foundation of Australia

GUIDELINE COMMITTEE

Physical Activity Recommendations for People with CVD Executive Working Group

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Group Members: Tom Briffa (*Principal author*); Roger Allan (*Chair*); Andrew Maiorana; Brian Oldenburg; Neville Sammel; Anthony Stubbs; Noella Sheerin

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

ENDORSER(S)

Australian Association for Exercise and Sports Medicine - Medical Specialty Society
Australian Cardiac Rehabilitation Association - Professional Association
Australian Divisions of General Practice - Medical Specialty Society
Australian Practice Nurses Association - Professional Association

Cardiac Society of Australia and New Zealand - Disease Specific Society
Royal Australian College of General Practitioners - Professional Association
Sports Medicine Australia - Professional Association

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the National Heart Foundation of Australia.

Print copies: Available from the National Heart Foundation of Australia's national telephone information service at 1300 36 27 87 or E-mail: heartline@heartfoundation.com.au.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Physical activity for people with cardiovascular disease: recommendations of the National Heart Foundation of Australia. MJA 2006; 184 (2):71-5. Electronic copies: Available in Portable Document Format (PDF) from the MJA Web site.
- Physical activity and energy balance. 2007 Feb. 4 p. Electronic copies: Available in Portable Document Format (PDF) from the National Heart Foundation of Australia.
- Physical activity in patients with cardiovascular disease: management algorithm and information for general practice. 2006. 3 p. Electronic copies: Available in Portable Document Format (PDF) from the National Heart Foundation of Australia.

Print copies: Available from the National Heart Foundation of Australia's national telephone information service at 1300 36 27 87 or E-mail: heartline@heartfoundation.com.au.

Additional resources, including a chest pain/discomfort action plan and key components of successful intervention strategies, can be found in the appendices to the original guideline document.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 10, 2007. The information was verified by the guideline developer on June 27, 2007.

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